chemically the substance in *solution.* We have just seen, though, that earth or charcoal does, and the usual hypothesis to account for this fact is that "porous substances condense gases—air, oxygen, etc., in proportion to the extent of their interior surface," and this oxygen actually destroys by *slow combustion* the substance in question. The enormous amount of surface to volume of porous charcoal or piles of earth permits the condensation of a large amount of gas which stands ready to attack any chemical body that can be decomposed or altered by it.

Of course this chemical action must diminish the more the longer the filter is in action, as the oxygen is not so readily replaced when the filter is covered with water. If water is really *polluted* by sewage matters, it has been shown that it may be improved materially but not perfectly purified by filtration. It is, therefore, pertinent to ask, what amount and kinds of organic matter found in water render it unfit for drinking?

Evidently, we must consider the two questions together. Organic matter, *per se*, cannot always be deleterious, otherwise soup would have to be ranked as poison. It is stated that the waters of the Dismal Swamp, saturated with organic matter, is actually preferred by sea-going vessels to purer waters. Chemistry is perfectly able to determine the mineral salts dissolved in water, and medicine can pronounce upon the amounts that may be taken into the system without injury. Chemistry can likewise determine the amounts and kinds of organic matter in any water, and if the source is known to be bad, or the organic matter (especially the albuminoids) in excess over good potable waters in the vicinity, the chemist is able to form an intelligent opinion, at least as to the "possible amount of germ" or disease producing power of the water.

London drinks Thames water principally, though "above the point where the supply is abstracted the river is contaminated by the excrements of more than 200,000 human beings."